ATTACHMENT II

IDEM's Assessment of the Eight-Hour Ozone Standard

Consistent with the United Sates Environmental Protection Agency's (EPA) March 28, 2000 guidance memorandum titled "Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards", the Indiana Department of Environmental Management (IDEM) has conducted a thorough review of the affected areas in Indiana. IDEM's review focused on the following primary and secondary analysis criteria:

Primary Analysis Criteria:

1. Monitoring data.

   - The standard is 0.08 parts-per-million (ppm) and determined by the average of the 4th highest 8-hour O3 values over a three-year period. Due to rounding, values equal to or greater than 0.085 ppm (or 85 parts-per-billion) are considered to exceed the standard.

2. Existing MSA/CMSA boundaries

   - Per EPA guidance, 1999 MSA boundary definitions were used in IDEM's evaluation.
   - The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. IDEM has done a cursory evaluation of the counties affected by the new definitions and has incorporated the relevant information into this evaluation, as appropriate.

Secondary Analysis Criteria:

1. Emissions and air quality in adjacent areas (including adjacent MSAs/CMSAs).
2. Population density and degree of urbanization including commercial development.
3. Monitoring data representing ozone concentrations in local areas and larger areas (urban or regional scale).
4. Location of emission sources.
5. Traffic and commuting patterns.
6. Expected growth.
7. Meteorology.
8. Jurisdictional boundaries, including existing 1-hour nonattainment area boundaries.
9. Level of control of emissions.
10. Regional emission reductions (e.g., NO_x SIP call or other enforceable regional strategies).

Table I on the following page outlines the MSAs/CMSAs and Indiana Counties subjected to the analysis criteria. A map of the affected MSAs/CMSAs and Indiana Counties, titled Figure I, is attached to this document. Per EPA guidance, IDEM's core analysis is based on the 1999 defined MSA/CMSA boundaries. As a result of the 2000 Census, the 2003 MSA/CMSA boundary definitions were published on June 6, 2003. IDEM has incorporated a cursory review of the counties affected by the new boundary definitions into our core analysis. Figure 2, also attached, depicts the results of Indiana's analysis.

Table I

Indiana Counties Assessed

Cincinnati Area
Dearborne County
Franklin County[1]
Ohio County

Elkhart/Goshen/South Bend Area
Elkhart/Goshen MSA: Elkhart County
South Bend MSA: St. Joseph County

Evansville Area
Gibson County [1]
Posey County
Vanderburgh County
Warrick County

Fort Wayne Area
Adams County[2]
Allen County
DeKalb County[2]
Huntington County[2]
Wells County
Whitley County

Central Indiana Area
Boone County
Brown County[1]
Hamilton County
Hancock County
Hendricks County
Johnson County
Madison County (Anderson Area)[3]
Marion County
Morgan County
Putnam County[1]
Shelby County

Lafayette Area
Benton County[1]
Carroll County [1]
Tippecanoe County

Louisville Area
Clark County
Floyd County
Harrison County
Scott County[2]
Washington County[1]

Michigan City/LaPorte Area
LaPorte County

Muncie Area
Deleware County

Northwest Indiana
Jasper County
Lake County
Newton County[1]
Porter County

Terre Haute Area
Clay County[1]
Sullivan County
Vermillion County
Vigo County

Other Affected Counties
Greene County
Jackson County
Perry County

[1] County added to MSA in June 2003 as a result of the 2000 Census.
[2] County removed from the MSA in June 2003 as a result of the 2000 Census.
[3] County redefined as a seperate MSA in June 2003 as a result of the 2000 Census.

As a result of extensive analysis, IDEM has developed the following evaluation of nonattainment area boundaries for designating areas under the 8-Hour NAAQS for ozone. This evaluation is based on 2000-2002 monitoring data and shall be updated once 2003 monitoring data is quality assured. In some areas of the state, evaluation for attainment or nonattainment is straightforward. In some areas, it is clear that another season of ozone data should be collected before any recommendation on designations is made.

Cincinnati Area:

Indiana Counties within the Area:

Dearborn, Franklin, and Ohio

Monitor Values:

There are no monitors located within Dearborn, Franklin, or Ohio Counties.

Evaluation:

County	July 15, 2003 Designation Recommendation
Dearborn	Attainment
Franklin	Attainment
Ohio	Attainment

Discussion:

There are no monitors located in Dearborn and Ohio Counties. The emissions inventories for Dearborn and Ohio Counties are insignificant in comparison to the other counties within the CMSA, although there is a fairly large power plant in Dearborn County. The air quality within Dearborn and Ohio Counties, as with the CMSA as a whole, will benefit greatly from the emission reductions associated with the NO_x SIP Call and new federal engine and fuel standards. Ohio and Dearborn Counties are predominantly rural in nature with very low population densities. Ohio County's population density is one of the lowest in the state. Although Dearborn County's population growth rate appears significant in terms of percentage increase, the volume in terms of growth is insignificant. Dearborn and Ohio Counties have not been included in previous Greater Cincinnati nonattainment designations. Likewise, there are three Kentucky Counties within the CMSA that have been excluded in previous designations. Therefore, it is recommended that Dearborn and Ohio Counties be designated attainment.

2003 MSA Boundary Definition:

The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. For the Indiana portion of the Cincinnati CMSA, Franklin County was incorporated into the revised CMSA boundaries. There are no ozone monitors in Franklin County. Franklin County's total population is 22,586 and its annual population growth rate is 1.5 %. Countywide annual total VOC emissions are less than 4,000 tons, and annual total NO_x emissions are just above 2,000 tons, which is insignificant compared to other counties within the CMSA. Therefore, it is recommended that Franklin County be designated attainment.

Evansville Area:

Indiana Counties within the Area:

Gibson, Posey, Vanderburgh, and Warrick.

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Gibson	Toyota	0.071
Posey	St. Phillips	0.087
Vanderburgh	Mill Rd.	0.083
Vanderburgh	Scott School	0.077
Warrick	Alcoa	0.084
Warrick	Boonville H.S.	0.08
Warrick	Tecumseh H.S.	0.08

Evaluation:

County	July 15, 2003 Designation Recommendation
Gibson	Recommendation deferred until close of 2003 ozone season.
Posey	Recommendation deferred until close of 2003 ozone season.
Vanderburgh	Recommendation deferred until close of 2003 ozone season.
Warrick	Recommendation deferred until close of 2003 ozone season.

Discussion:

The only monitored violation of the standard within the Evansville Area is a marginal violation of .087 PPB at the St. Phillips site in Posey County.

According to recent EPA modeling, the entire Evansville Area will attain the 8-hour standard upon the implementation of the NO_x SIP Call and federal engine and fuel standards. These measures, combined with additional existing controls will reduce total NO_x emissions by 61% and total VOC emissions by 17% by 2007 within Indiana's portion of the Evansville metropolitan area.

Indiana wishes to further assess the Evansville Area upon the close of the 2003 ozone season prior to making a designation recommendation given that:

- six of the seven monitor sites within Indiana's portion of the Evansville region are in compliance with the 8-hour standard,
- the marginal nature of the one Posey County monitor violation,
- the expected clean air benefits from the regional NO_x reductions already required and
- the fact that the consequences of a nonattainment designation are still unclear.

Fort Wayne Area:

Counties within the Area:

Adams, Allen, DeKalb, Huntington, Wells, and Whitley .

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Allen	Leo H.S.	0.088
Allen	Fort Wayne	0.084
Huntington	Roanoke	0.086

Evaluation:

County	July 15, 2003 Designation Recommendation
Adams	Attainment
Allen	Nonattainment
DeKalb	Attainment
Huntington	Affected by Overwhelming Transport
Wells	Attainment
Whitley	Attainment

Discussion:

One of the two monitor values for the ozone monitors located within Allen County is above the standard. The monitor within Huntington County has been in place for three years and has a current value marginally above the standard (.086). The majority (over 50%) of the MSA's emissions (NOx and VOC) are generated within Allen County. A substantial portion of Allen County is rural and due to existing land use controls, urban growth is limited to the central portion of Allen County (Fort Wayne). The remaining portion of the MSA is rural and maintains fairly low population density. The majority of the region's traffic congestion is confined to the Fort Wayne Urban Area within Central Allen County and all counties within the MSA maintain workforces that exceed 63% in-county employment ratios. Therefore, it is recommended that the nonattainment area designation be limited to Allen County.

The ozone monitor in Huntington County has been in place since 2000. This monitor was sited as a background monitor for the Fort Wayne area and it currently monitors a value marginally above the standard. Huntington County is predominantly rural. At this time, IDEM recommends that Huntington County be considered a county affected by overwhelming transport. IDEM does not believe that the fact that Huntington County is adjacent (in this case upwind) to an MSA should preclude its obvious characterization as a county whose modestly high ozone values are caused by transported ozone. Huntington County will benefit greatly from the NO_x SIP Call and new federal engine and fuel standards, thereby ensuring compliance with the 8-hour standard by 2007. Upon the close of the 2003 ozone season, IDEM will further assess Huntington County and may revise its recommendation.

2003 MSA Boundary Definition:

The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. For the Fort Wayne MSA, boundaries changed significantly. Adams, DeKalb, and Huntington counties are no longer part of the MSA. The revised boundary definition further supports our evaluation and recommendation for the Fort Wayne MSA.

Central Indiana Area:

Counties within the Area:

Boone, Brown, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Putnam, and Shelby.

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Boone	Whitestown	0.088
Hamilton	Noblesville H.S.	0.093
Hancock	Fortville	0.092
Hendricks	Avon	0.088
Johnson	Trafalgar	0.087
Madison	E. Elementary	0.091
Marion	Mann Rd.	0.084
Marion	Harding St.	0.086
Marion	Fort Benjamin	0.089
Marion	Naval Air Center	0.089
Morgan	Monrovia	0.087
Shelby	Fairland	0.093

Evaluation:

County	July 15, 2003 Designation Recommendation
Boone	Nonattainment
Brown	Attainment
Hamilton	Nonattainment
Hancock	Nonattainment
Hendricks	Nonattainment
Johnson	Nonattainment
Madison	Nonattainment
Marion	Nonattainment
Putnam	Attainment
Morgan	Nonattainment
Shelby	Nonattainment

Discussion:

There is a monitored violation of the standard in each of the nine counties within the MSA. The Indianapolis MSA functions as a region, and Marion County (Indianapolis) is a sphere of influence in terms of employment/commuting, commerce, and recreation to the other counties within the MSA. The Indianapolis MSA's population density is spreading well beyond Marion County. In fact, the counties surrounding Marion County represent the fastest growing counties in the state. Mobile source emissions (NO_x and VOC) represent the largest portion of the emissions inventory for Marion County, as well as for the MSA as a whole. Analysis indicates that the mobile source emissions for Marion County and the MSA are regional in nature. For these reasons, it is recommended that the MSA, as defined in 1999, be designated nonattainment.

2003 MSA Boundary Definition:

The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. Brown and Putnam Counties were incorporated as part of the Indianapolis MSA and Madison County was excluded from the Indianapolis MSA and defined as the Anderson MSA. There are no ozone monitors in Brown or Putnam Counties.

The total population of Brown County is just over 16,000 and 90% of its VOC inventory results from biogenics. Total NO_x emissions released within Brown County are less than 900 tons, mainly from motor vehicles. The total emissions inventory for Brown County is insignificant compared to the counties within the true urban area.

The total population of Putnam County is around 35,000, with an annual growth rate of 1.6%, compared to Hamilton County as an example with a population of 176,000 and an annual growth rate of 14%. The majority of the total VOC inventory results from biogenics (42%). Total VOC and NO_x emissions released within Putnam County are less than 6,000 tons, both of which are insignificant compared to the inventories for the counties within the true urban area.

IDEM recommends that Brown and Putnam Counties be designated attainment. IDEM will provide a recommendation to EPA concerning how to classify Madison County (separate nonattainment area or part of Indianapolis region) at a later date.

Louisville Area:

Indiana Counties within the Area:

Clark, Floyd, Harrison, Scott, and Washington

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Clark	Charlestown	0.09
Floyd	New Albany	0.083

Evaluation:

County	July 15, 2003 Designation Recommendation
Clark	Nonattainment
Floyd	Nonattainment
Harrison	Attainment
Scott	Attainment
Washington	Attainment

Discussion:

The value for the Charlestown monitor in Clark County exceeds the standard. Historical monitoring data as outlined below illustrate monitors in both Clark and Floyd Counties have had multiple annual exceedances of the standard. Harrison and Scott Counties are predominately rural in nature, with low to moderate population density. Clark and Floyd Counties account for 71% of the area's overall VOC emissions and 81% of the area's NOx emissions. There are no major stationary sources located within Harrison or Scott Counties. Scott County in particular maintains a high in-county workforce employment rate at 60%, meaning that there is not much commuting occurring between Scott County residents and the remainder of the CMSA.

Clark and Floyd Counties were designated nonattainment under the one-hour ozone standard in 1991. Harrison and Scott Counties were excluded from previous nonattainment designations, and growth in Harrison and Scott Counties has not been significant. Currently, Harrison County accounts for 15% of the VOC emissions that comprise Indiana's portion of the MSA and only 12% of the NOx. Likewise, Scott County only accounts for 13% of the VOC and 7% of the NOx emissions within the Indiana portion of the MSA. It does not appear that emissions from Harrison or Scott Counties have a significant impact on air quality within the Louisville MSA. Therefore, it is recommended that the nonattainment area designation be limited to Clark and Floyd Counties.

Annual 4th Avg High Value

	Charlestown	New Albany
1995	**0.098**	**0.094**
1996	**0.081**	**0.091**
1997	**0.097**	**0.084**
1998	**0.104**	**0.100**
1999	**0.089**	**0.094**
2000	**0.085**	**0.077**
2001	**0.086**	**0.076**
2002	**0.100**	**0.097**

2003 MSA Boundary Definition:

The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. As a result, Scott County is no longer part of the MSA. Washington County has been incorporated into the revised boundary definition for the Louisville MSA. The total population of Washington County is just under 29,000, with an annual growth rate of 2%, compared to a total population of 175,000 in Clark and Floyd Counties. The largest portion of the annual VOC inventory results from biogenics (63%). Total NO_x emissions released within Washington County are around 2,000 tons, which is insignificant in comparison to the 19,000 tons emitted in Clark and Floyd Counties. There are no ozone monitors in Washington County.

IDEM recommends Washington County be designated attainment.

Michigan City/LaPorte Area:

Indiana Counties within the Area:

LaPorte

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
LaPorte	Michigan City	0.092
LaPorte	LaPorte	0.084

Evaluation:

County	July 15, 2003 Designation Recommendation
LaPorte	Nonattainment

The monitor value for the Michigan City ozone monitor located within LaPorte County is above the standard. Although LaPorte County is affected by regional transport, there is a notable population density and a significant amount of travel occurs between LaPorte County and the Greater Chicago Area, including Lake and Porter Counties. It is recommended that LaPorte County be designated nonattainment, however, there are two options to consider in terms of boundaries:

Option 1

LaPorte County is adjacent to Lake and Porter Counties. Technical analysis demonstrates that LaPorte County is affected by regional transport, and the solution to the area's air quality problem rests significantly on region-wide controls. LaPorte County is served by a Metropolitan Planning Organization that maintains a travel demand model for Lake,

Porter, and LaPorte Counties. Therefore, LaPorte County could be designated along with Lake and Porter as part of the Northwest Indiana nonattainment area.

Option 2

Based on the 2000 Census, LaPorte County will be designated a separate MSA/CBSA later in 2003. LaPorte County has the option of creating its own Metropolitan Planning Organization. In addition, LaPorte County was excluded from nonattainment designations under the 1-hour ozone standard. Over 78% of the workforce residing in LaPorte County is employed within the county. Lake and Porter Counties will still be affected by the 1-hour ozone standard following 8-hour designations, and could have a different compliance date established. In addition, based on previous modeling, it appears that LaPorte County could attain the 8-hour standard by 2007 (prior to Lake and Porter Counties) without additional controls. Therefore, LaPorte County could be designated as a separate nonattainment area.

IDEM will continue to discuss this issue with interested and affected parties in the region and provide further input to EPA prior to designations being finalized.

Northwest Indiana:

Counties within the Area:

Jasper, Lake, Newton, and Porter.

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Lake	Gary IITRI	0.083
Lake	Hammond	0.092
Lake	Lowell	0.079
Porter	Ogden Dunes	0.09
Porter	Dunes Lake Shore	0.084
Porter	Valpo	0.086

Evaluation:

County	July 15, 2003 Designation Recommendation
Jasper	Attainment
Lake	Nonattainment
Newton	Attainment
Porter	Nonattainment

Discussion:

Values for multiple ozone monitors within Lake and Porter Counties are above the standard. Lake and Porter Counties comprise the PMSA, which is Indiana's portion of the greater Chicago CMSA.

2003 MSA Boundary Definition:

The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. As a result, Newton and Jasper Counties have been incorporated into the revised boundary definition for the Chicago CMSA (Gary PMSA). There are no ozone monitors in Newton or Jasper Counties. The total population of Newton County is just over 15,000, with an annual growth rate of 1.2%. The total population of Jasper County is around 30,000, with an annual growth rate of 1.1%. Total NO_x and VOC emissions released within Newton and Jasper Counties are insignificant compared to those associated with Lake and Porter Counties.

IDEM recommends that Newton and Jasper Counties be designated attainment.

South Bend/Elkhart/Goshen Area:

Counties within the Area:

Elkhart MSA: Elkhart County
South Bend MSA: St. Joseph County

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Cass (MI)	Cassopolis	0.09
Elkhart	Bristol*	0.099
St. Joseph	Granger	0.09
St. Joseph	South Bend	0.087
St. Joseph	Potato Creek	0.083

**Monitor site relocated in 2002. Value referenced is the 4th high value for the first year at the new site.*

Evaluation:

County	July 15, 2003 Designation Recommendation
Elkhart	Nonattainment
St. Joseph	Nonattainment

Discussion:

Values for two of the three monitors located within St. Joseph County are above the standard. The monitor located in Elkhart County was relocated in 2002 due to apparent interference from a nearby treatment plant. The 4th high ozone value for the first year (2002) at the new monitoring site is .099. Elkhart County accounts for the vast majority of the region's NO_x and VOC emissions inventories. An equal amount of traffic volume and congestion occurs in St. Joseph and Elkhart Counties. Elkhart County's growth rate

is twice that of St. Joseph County. St. Joseph and Elkhart Counties are under the jurisdiction of a single Metropolitan Planning Organization and are within the same Transportation Management Area. St. Joseph and Elkhart Counties were designated as one nonattainment area in 1991, and maintenance area in 1994 under the 1-hour ozone standard. In addition, there is a downwind monitor in Cassopolis, Michigan, just north of the South Bend and Elkhart/Goshen MSAs that maintains a value above the standard. It appears that emissions deriving from Elkhart County have an influence on air quality elsewhere within the region. Therefore, it is recommended that the South Bend and Elkhart MSAs be designated as one nonattainment area.

Other Counties:

Counties Affected:

Greene, Jackson, and Perry

Monitor Values (4th highest average value 2000 - 2002 in parts per million):

COUNTY	MONITOR LOCATION	Value
Greene	Plummer	0.089
Jackson	Brownstown	0.085
Perry**	AK Steel	0.09

*** Operation of this monitor discontinued following the 2001 ozone season. The three year average reflected is 1999-2001.*

Evaluation and Discussion:

Greene County

The monitor within Greene County has a fourth highest average value above the standard for the 2000 – 2002 period. However, the monitor site in Greene County was strategically chosen to evaluate transport as a background monitoring site for Greater Indianapolis. Greene County is a rural county with a very modest emissions inventory and sparse population.

Jackson County

The monitor within Jackson County also has a fourth highest average value above the standard for the 2000 – 2002 period. The monitor site in Jackson County was also strategically chosen to evaluate transport as a background monitoring site for Greater Indianapolis. Jackson County is a rural county with a very modest emissions inventory and sparse population.

Greene and Jackson counties are rural counties with sparse population density and insignificant emissions inventories. These counties are most likely affected by transport and will benefit greatly from the NO_x SIP Call and new federal engine and fuel standards, thereby ensuring compliance with the 8-hour standard by 2007. At this time, Indiana recommends that these counties be designated as counties affected by overwhelming transport.

2003 MSA Boundary Definition:

The U.S. Office of Management and Budget published revised MSA boundary definitions on June 6, 2003. As a result, Greene County has been incorporated into the revised boundary definition for the Bloomington MSA. The total population of Greene County is just over 34,000, with an annual growth rate of 1.2%. The largest portion of the annual VOC inventory results from biogenics (61%). Total NO_x emissions released within Greene County less than 5,000 tons. There are no metropolitan areas within Greene county and there are no cities or towns within the county that are contiguous with the Bloomington Urban Area. Greene County is upwind of the Bloomington Metropolitan Area, so ozone levels in Greene County would not be influenced by the metropolitan area. Therefore, consistent with the 1999 MSA boundaries and IDEM's evaluation, IDEM believes that Greene County should be treated as an isolated rural county subject to overwhelming transport.

Perry County

Although the Perry County monitor* was taken out of service following the 2001 ozone season, it maintained a 3-year average above the standard through the 2001 season. The majority of Perry County is rural, and the emissions inventory is minimal. Air quality in the county is substantially influenced by upwind sources, including those to the south in Kentucky. IDEM is relocating a monitor in Perry County and it should be operational prior to the close of the 2003 ozone season. IDEM prefers to wait for three years of data from the new site prior to assessing Perry County's attainment status. At this time, IDEM recommends that Perry County be designated attainment/unclassifiable.

**This monitor was operated by AK Steel for three years, as required by its air construction permit.*

Areas to Assess After Close of the 2003 Ozone Season:

Areas/Counties Affected:

Carroll County (Downwind site for Lafayette MSA)
Delaware County (Muncie Area)
Terre Haute Area (Clay, Sullivan, Vermillion, and Vigo Counties)

Monitor Values (4th highest average value 2001 - 2002 in parts per million):

Carroll County (monitor is a downwind site for the Lafayette MSA)

COUNTY	MONITOR LOCATION	Value
Carroll*	Flora	0.087

Delaware County (Muncie Area)

COUNTY	MONITOR LOCATION	Value
Delaware*	Albany	0.089

Terre Haute Area

COUNTY	MONITOR LOCATION	Value
Clark (IL)*	West Union	0.08
Vigo	Terre Haute	0.079
Vigo*	Sandcut	0.091

**Monitors have only been in service for two years.*

There are no current violations of the standard in these three MSAs. However, each of these areas contains a monitor with a two-year average 4th high value that is above the standard. Therefore, IDEM will evaluate these areas upon the conclusion of the 2003 ozone season prior to further evaluating their attainment/nonattainment status.